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AN 2000:503049 BIOSIS

DN PREV200000503049

TI Isolation and structure-functional characterization of human colostrum lactoferrin.

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SO Biotecnologia Aplicada, (Julio-Septiembre, 2000) Vol. 17, No. 3, pp. 177-182. print.
ISSN: 0864-4551.

DT Article

LA English

ED Entered STN: 22 Nov 2000
Last Updated on STN: 11 Jan 2002

AB Human lactoferrin has been the focus of extensive research because of its antimicrobial, ferrochelating, immunomodulatory, and diagnostic potentialities. To meet the need for homogenous lactoferrin preparations, here we report simple procedures for colostrum processing, chromatographic isolation, and quality control techniques for the evaluation of the most relevant structure-functional properties of lactoferrin. Purity and identity were determined by combination of electrophoretic, densitometric, and immunochemical techniques. Structural integrity was assayed by high-performance liquid chromatography (HPLC), and iron-chelating properties were evaluated by spectroscopic analysis of lactoferrin derivatives. Antimicrobial activity was tested in vitro against *Vibrio cholerae* C7258, a regional epidemic strain. These procedures allowed the isolation and characterization of substantially pure (98-99%), structurally intact (92-93%), non-toxic, lipopolysaccharide (LPS)-free (less than 0.40 EU/mg of protein), low-iron saturated (below 7% saturation), biologically active (2.50 μ M lactoferrin inhibited *V. cholerae* growth in 50%), and consistently homogenous preparations. The quality of this lactoferrin preparation allows its use in basic studies of the mechanisms of microbial virulence, and in the development of new tools for the diagnosis of gastrointestinal inflammation which are currently being performed by our group.

CC Digestive system - Physiology and biochemistry 14004
Biochemistry studies - General 10060

IT Major Concepts
Biochemistry and Molecular Biophysics; Digestive System (Ingestion and Assimilation)

IT Chemicals & Biochemicals
colostrum lactoferrin: analysis, characterization, functional aspects, structural aspects

IT Methods & Equipment
high performance liquid chromatography: analytical method, liquid chromatography; spectroscopy: analytical method, photometry: CB, photometry: CT

IT Miscellaneous Descriptors
biotechnology; gastrointestinal inflammation: diagnosis; infection prevention

ORGN Classifier
Hominidae 86215
Super Taxa
Primates; Mammalia; Vertebrata; Chordata; Animalia
Organism Name
human: adult, human

Taxa Notes

Animals, Chordates, Humans, Mammals, Primates, Vertebrates